UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,123	04/13/2004	Nianci Han		6448

7590 02/28/2006

APPLIED MATERIALS, INC.
Patent Department
M/S 2061
P.O. Box 450A
Santa Clara, CA 95052

EXAMINER	
LAVILLA, MICHAEL E	

ART UNIT	PAPER NUMBER
1775	

DATE MAILED: 02/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/824,123	HAN ET AL.	
	Examiner	Art Unit	
	Michael La Villa	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) 13-22 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-12 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 13 April 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 20040413.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

    I. Claims 1-12, drawn to a coated component, classified in class 428, subclass 655.

    II. Claims 13-22, drawn to a method of making a coated component, classified in class 205, subclass 538.

2. The inventions are distinct, each from the other because of the following reasons:
3. Inventions of Group I and of Group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made by an alternative process that entails thermally spraying the coating material, rather than electroplating the coating material.
4. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.
5. Because these inventions are independent or distinct for the reasons given above and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Mr. Janah on 17 February 2006 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-12. Affirmation of this election must be made by applicant in replying to this Office action. Claims 13-22 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

8. The disclosure is objected to because of the following informalities: The patented status and resulting patent number for the parent application, at the first sentence of the Specification, should be provided.
9. Appropriate correction is required.

Claim Objections

10. Claim 11 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. It is unclear whether Claim 11 demands the presence of yttrium containing species. If not, it

is not properly further limiting as the independent claim requires a yttrium containing species in the electroplated coating layer.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

12. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 4 and 7-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

I. Regarding Claims 4 and 10, it is unclear what ratios are encompassed by "a stoichiometric ratio."

II. Regarding Claim 7, it is unclear what is the antecedent basis of the phrase "the gas supply." Does this refer to the "gas distributor," or is this a different aspect of the process chamber?

III. Regarding Claim 11, it is unclear whether this limitation requires the presence of yttrium containing species. Should the claim read "further comprises"? Must yttria be the stabilizing species?

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

15. A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

16. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Goward USP 3,754,903. Goward teaches a turbine engine component having a superalloy substrate which is coated with the claimed Y-Al compounds. See Goward (Abstract; Figure 1; col. 2, line 42 through col. 3, line 6; and Examples 1-3). While the coating layer of Goward is applied by sputtering, electroplated layers could encompass the structural and compositional characteristics of the coating layer of Goward, particularly in view of the lack of claimed processing parameters.

17. Claims 1, 2, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Jackson et al. USP 6,287,644. Jackson teaches a turbine engine component having a superalloy substrate coated with a Y-Al containing alloy of compositional gradient. See Jackson et al. (Abstract; col. 3, lines 5-41; col. 4, lines 10-60; col. 5, lines 5-24; col. 8, line 60 through col. 9, line 16; col. 10, line 57 through col. 11, line 25; col. 13, line 48 through col. 14, line 15). While the coating layer of Jackson is applied by vapor deposition, electroplated layers could encompass the structural and compositional characteristics of the coating

layer of Jackson, particularly in view of the lack of claimed processing parameters.

18. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Aguero et al. USP 5,807,613. Aguero et al. teaches coating a superalloy substrate with an Al-Y alloy coating layer, wherein these materials are useful for turbine engine components. See Aguero et al. (col. 1, lines 15-35; col. 4, lines 24-44; and Example 1). While the coating layer of Aguero is applied by ion plating deposition, electroplated layers could encompass the structural and compositional characteristics of the coating layer of Aguero, particularly in view of the lack of claimed processing parameters.

19. Claims 1-4 and 6 rejected under 35 U.S.C. 102(b) as being anticipated by Morita et al. USPA 2002/0012791. Morita et al. teaches a YAG coated substrate support used in a processing chamber, wherein the YAG is plasma resistant. See Morita (Abstract; Figure 2; paragraphs 1, 2, 4, 7, 8, 13-15, 43-45, and 90). While the coating layer of Morita et al. is applied with a sintered composition, electroplated layers could encompass the structural and compositional characteristics of the coating layer of Morita et al., particularly in view of the lack of claimed processing parameters.

20. Claims 1-4 and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Murakawa et al. USP 6,447,937. Murakawa et al. teaches a YAG coated substrate support used in a processing chamber, wherein the YAG is plasma resistant. See Murakawa (Abstract; Figure 6; col. 3, line 58 through col. 4, line

13; Table 1; col. 21, line 21 through col. 22, line 5). The window functions as part of the wall of the apparatus. While the coating layer of Murakawa et al. is applied with a sintered composition, electroplated layers could encompass the structural and compositional characteristics of the coating layer of Murakawa et al., particularly in view of the lack of claimed processing parameters.

21. Claims 1, 2, 7, and 8 are rejected under 35 U.S.C. 102(a and e) as being anticipated by O'Donnell et al. USPA 2004/0002221. O'Donnell et al. teaches coating a process chamber component with yttria. See O'Donnell et al. (paragraphs 27-32, 44, 45, and 68-78). While the coating layer of O'Donnell et al. is applied by thermal spraying, electroplated layers could encompass the structural and compositional characteristics of the coating layer of O'Donnell et al., particularly in view of the lack of claimed processing parameters.

22. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeuchi et al. JP 11-229142. Takeuchi et al. teaches forming a YSZ coating layer by electrochemical methods on a reaction chamber surface. See Takeuchi et al. (Abstract; Claims 1 and 2; and paragraphs 8, 37-41).

Claim Rejections - 35 USC § 103

23. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

24. (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

25. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

26. Determining the scope and contents of the prior art.
27. Ascertaining the differences between the prior art and the claims at issue.
28. Resolving the level of ordinary skill in the pertinent art.
29. Considering objective evidence present in the application indicating obviousness or nonobviousness.

30. Claims 7-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita et al. USPA 2002/0012791. Morita et al. teaches a YAG coated substrate support used in a processing chamber, wherein the YAG is plasma resistant. See Morita (Abstract; Figure 2; paragraphs 1, 2, 4, 7, 8, 13-15, 43-45, and 90). While the coating layer of Morita et al. is applied with a sintered composition, electroplated layers could encompass the structural and compositional characteristics of the coating layer of Morita et al., particularly in view of the lack of claimed processing parameters. Morita et al. may not exemplify a processing chamber. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the coated substrates of Morita et al. as processing chambers as Morita et al. teaches they are effective for this purpose. In this configuration, the coated substrate may be deemed to function as a liner or wall of the apparatus.

CONCLUSION

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael La Villa whose telephone number is

(571) 272-1539. The examiner can normally be reached on Monday through Friday.

32. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

33. Information regar ding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael La Villa
21 February 2006

MICHAEL E. LAVILLA PH.D.
PRIMARY EXAMINER